## We Claim

1. An improved process for the preparation of gabapentin of the formula 1

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which comprises

- (i) preparing an aqueous solution of Gabapentin hydrochloride in water in the ratio of one part by weight of the former to 0.5 to 3 parts by weight of the later,
- (ii) preparing an aqueous solution of an alkali metal base in a concentration in the range of 40-50% w/w
- (iii) adding 0.08 to 0.3 parts by weight of the solution obtained in step (ii) to 1.5 to 4 parts by weight of the solution obtained in step (i) at a temperature in the range of 0 to 20 degree C
- (iv) heating the resulting solution gradually to a temperature in the range of 50-90 degree  ${\bf C}$
- (v) gradually cooling the resulting solution to a temperature in the range of 0 to 15 degree C to obtain a precipitate,
- (vi) aging the precipitate for a period in the range of 0.5 hrs to 8 hrs at a temperature in the range of 0 to 15 degree C



- (vii) Separating the precipitate from the mother liquor by conventional methods and
- (viii) recrystallising the precipitate from a mixture of IPA, methanol & water to get Gabapentin of over 99.5 % purity and a mother liquor
- 2. An improved process as claimed in claim1 wherein the amount of gabapentin hydrochloride and water used in step (i) is in the range of 0.5 to 2.5 parts of water to 1 part of the Gabapentin hydrochloride and more preferably 1.5 to 2.5 parts of the water
- 3. An improved process as claimed in claims 1 & 2 wherein the alkali used in step (ii) may preferably be sodium hydroxide or potassium hydroxide, more preferably sodium hydroxide.
- 4. An improved process as claimed in claims 1 to 3 wherein the solution of alkali used is in a concentration in the range of 40-50% w/w more preferably in the concentration in the range of 45-50% w/w in water.
- 5. An improved process as claimed in claims 1 to 4 wherein the temperature employed in step (iii) is preferably 10-20deg C and more preferably 10-15 deg C.
- 6. An improved process as claimed in claims 1 to 5 wherein the temperature employed in step (iv) used is preferably be 50-75deg C and more preferably 60-70 deg C.
- 7. An improved process as claimed in claims 1 to 6 wherein the temperature employed in step (v) is preferably 5.15 C deg and more preferably 5-10deg C.

- 8. An improved process as claimed in claims 1 to 7 wherein the time employed for aging the precipitate in step (vi) is preferably be between 0.5 to 3 hrs and more preferably 0.5 to 1 hr.
- 9. An improved process as claimed in claims 1 to 8 wherein the separation of gabapentin in step (vii) effected by filtration, more preferably centrifugation.
- 10 A novel improved process for the preparation of Gabalactam of the formula 3 which comprises treating the mother liquors obtained in steps (vii) & (viii) of the above mentioned process with aq.sodium hydroxide in a concentration in the range of 5 to 20% at a temperature in the range of 80 to 100 degree C, recovering the gabalactam by extraction with organic solvents.
- 11. A novel improved process as claimed in claim 10 wherein the concentration of sodium hydroxide used ranges from 10-to 20 %, the temperature used ranging from 80 to 85 deg C
- 12. A novel improved process as claimed in claims 10 & 11 wherein the recovery of gabalactam is effected by extracting the reaction mixture with solvents such as toluene, ethylene dichloride, methylene dichloride or hexane, preferably toluene.